

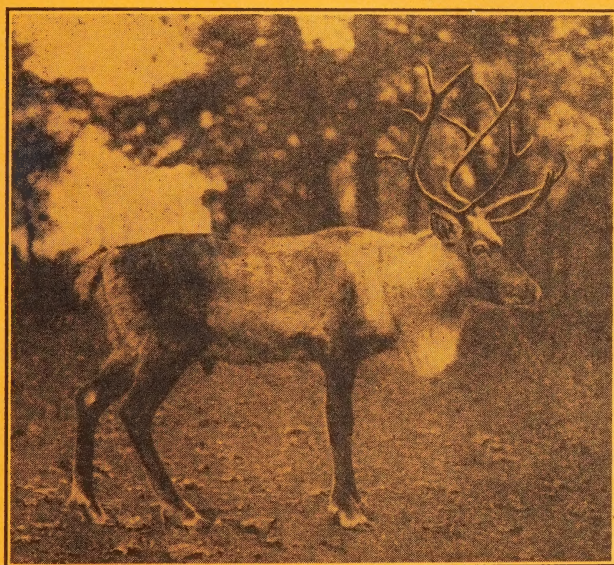
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ONTARIO

Monthly Bulletin

DEPARTMENT OF
GAME AND FISHERIES



WOODLAND CARIBOU

HON. G. H. DUNBAR
Minister

D. J. TAYLOR
Deputy Minister

DEPARTMENT OF GAME AND FISHERIES

TORONTO - ONTARIO

HON. G. H. DUNBAR, *Provincial Secretary*
Minister in charge of Department

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Editorial

"CONSERVING wild life" says Seth Gordon, well known authority on wildlife, "has become a serious public business". Everyone who has given any thought to a study of the problem will agree with Mr. Gordon. It is a serious business; a business demanding the utmost in organized effort, individual co-operation, scientific research and the practical application of whatever knowledge is available. It is serious also in that it deals with a public trust, and because it has many ramifications and complex problems not obvious to the superficial observer and which hamper the successful development of that trust. The conservation of our game and fish resources — and by that we mean their wise use, rehabilitation and perpetuation — is not a mere matter of regulation and restocking, although these are valuable aids. It also embraces such problems as habitat, environment, reforestation, soil erosion, water control — including levels and temperatures — and knowledge as to life history and the inter-relationship which exists between the various species of game and fish life. It is only by applying ourselves to all of these complex and difficult problems that we can hope to restore that abundance which characterized natural conditions.

These related problems with which we are faced are the natural result of the development of the country. The cutting down of forests and the destruction of vegetation in order to clear the land for agricultural purposes was essential to life and progress; the damming of streams and waterways was an inevitable result of the growth of industry and power development; while the draining of swamps — though ill advised — was deemed of economic importance. All of these developments, however, adversely affected wildlife, and in any scheme for increased production must be given consideration. Birds and mammals cannot thrive without food and cover, and fish will not survive in polluted waters or streams which are subject to seasons of heavy floods or water famines.

At the same time it is obvious that pristine natural conditions can never be restored. The primitive pioneer world wherein wildlife flourished so abundantly has gone forever. Ours is a new world of intensive agricultural activities, expanding industries, modern transportation methods, advancing civilization and diminishing geographical boundaries. This new world is essential to our modern way of life, and the things which it implies are important to our existence. For this reason much of what was once suitable wildlife environment has been destroyed as such, and much of what remains has suffered from misuse and mismanagement. Denuded forest areas, soil erosion, dried up creeks and river beds, polluted waters, etc., are problems of management. All the natural resources with which wildlife is allied must be conserved if wildlife is to flourish. We must restore what we have destroyed — where such restoration is practical, and consistent with land use — replenish where misuse has caused depletion, and incorporate in our administrative policies such protective measures as will ensure a reasonable share of the resources for the present generation and an adequate supply for future needs.

It is very pleasing to note that these questions of land and water conservation are today receiving a great deal of attention because of serious economic losses through drought and floods, and the realization that soil erosion is making extensive inroads on agricultural lands. Every effort to re-adjust these conditions is a boost in the scheme to re-establish and develop an abundance of wildlife.

THE ELK (Wapiti)

A great deal of newspaper publicity was recently given to the release of some 20 elk in North Bay district. These elk had been raised in the sanctuary of the Pembroke Crown Game Preserve at Petawawa, and were surplus animals which it was necessary to transfer because the herd had become too large for the natural food supply, and artificial feeding on a large scale was deemed uneconomic.

As few hunters are aware that the propagation of this majestic animal is still a part of the Department's plans for developing and perpetuating the wildlife of the Province, a few facts in connection with the elk will probably be of interest. As a background it is noted that the Fish and Game Commission report of 1892 stated that "a few are still to be found in Northern Ontario." It recommended that protection through a Close Season be continued. A bill passed by the Ontario Legislature in 1892, subsequent to the Commissioner's report, continued the Close Season until November 1st, 1895. At the expiry of that period the Close Season was again extended to 1900, and in that year the period was continued indefinitely. A Close Season still prevails.

The natural habitat of the elk was the western plains, and many years ago they roamed in thousands over these areas, but the migration seldom extended deep into Ontario because of the nature of the terrain. It is not clear that they were ever very plentiful in this Province and in the pre-

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conservation area they doubtless suffered like other species from lack of protection. In so far as the sportsman is concerned the elk, as a game animal, passed from the picture well over half a century ago.

In keeping with the Department's policy of restocking, wherever such can be done under present conditions, it was found possible through the co-operation of the National Parks Branch of the Federal Department of the Interior to secure a shipment of 25 elk from Alberta in 1932. The animals arrived in good condition in November of that year and were placed on the Pembroke Crown Game Preserve, the lands of which are the property of the Department. During the intervening years this original shipment has produced more than 200 elk, many of which have been released from time to time or placed in other protected areas. The latest release represents the surplus herd and the remaining stock consists of 10 bulls, 30 cows and about one dozen calves.

In 1933 a further shipment of six carloads was brought into the Province from Wainwright, Alberta, and distributed in the Burwash, Chapleau and the Nipigon-Onaman Crown Game Preserves. By 1934 it was possible to transfer some of the herd to the Goulais-River-Ranger Lake Crown Game Preserve.



ELK (WAPITI), Burwash Crown Game Reserve.

It is, of course, difficult to keep a close check on the progress of the herd in these different preserves because the areas are very extensive and for the most part unenclosed. Overseers, however, make regular patrols through the areas and from time to time have reported seeing numbers of the animals. One Overseer reported seeing a herd of about 100 in the

Chapleau Preserve while three others reported increases in the same area. Elk have also been reported in varying numbers in the other sanctuary areas. In the Burwash area, which is enclosed, there has been a large increase, while a number have been seen in adjoining townships, probably an overflow from the Preserve Area.

The experiment of re-introducing the elk into Ontario has been reasonably successful in so far as the protected areas are concerned. What the result will be in hunting districts will depend in large measure on the public. They are of course protected by a Close Season and should be free to wander unmolested, but while human nature is as it is they will always be subject to the depredations of the poacher and unscrupulous hunter. Given a chance, however, there is no reason why they should not find their own environment once more and in such numbers as to become a legitimate part of the sportsman's bag.

There is little or no excuse for the sportsman mistaking an elk for a deer. In size there is no comparison, as the elk is one of the largest species of the deer tribe, and in addition is the most stately and graceful of the whole family. The bull has a magnificent spread of antlers which sweep upwards gracefully in uniform regularity and in the larger heads are sometimes close to six feet in length. The hoofs are broad and rounded while the tail is extremely short and depressed on the rump. The general colour in summer is light chestnut red, darkest on neck and legs, while the throat and median ventral line are almost black. The rump is yellowish white with dark bands running down the back of the hind leg. In winter the colours are more grayish.

The elk is less alert than the deer and its usual gait is a long swinging trot which carries it along at a fairly good speed.

Sportsmen are asked to protect the liberated animals by exercising care while hunting and by reporting any interference by others.

SPORTING ETHICS

The ethics of sportsmanship are the unwritten code of morals which clarify the definition of a good sportsman. They apply in some form to all types of recreation and in a broader sense to the life and character of the individual. To be classed as a "good sport", or a "good sportsman" is to have been crowned with one of the highest measures of public esteem.

Ethics are a moral responsibility, and as such represent human ideals and consideration carried beyond the point of legal necessity. Unfortunately our ideas of what is good and what is bad are as wide as the poles. No one can set himself up as judge of the actions of another without knowing the viewpoint of the other, and the reasons for the action. Even then it would be more charitable to withhold judgment than to assume that, from one's own standpoint, the actions of another are wrong, and so brand them.

In discussing the subject as it affects the sports of hunting and fishing we have absolutely no idea of criticising individual action, carried on within the scope of the regulations, but rather of pointing out how certain considerations and refinements will add to the recreational pleasure involved, and at the same time help to conserve the resources.

First and foremost it seems necessary to make it clear that angling and hunting are no longer an essential part of our domestic life so far as the individual is concerned. The native Indian and the pioneers hunted and fished to provide food and clothing for themselves and their families. They took what they required for sustenance and seldom destroyed unnecessarily. It was part of the domestic arrangements relied upon for sustaining life and providing for creature comforts. Today, as individuals, we do not require to provide our own food — although still dependant upon someone else to provide it for us — what we do require is to barter our services for that which will enable us to purchase food. In this arrangement of supply and demand game has disappeared from the market and has been succeeded by a domestic supply of flesh and fowl.

Fish is still a staple article of food, but here again economic progress has been such that it is the lifework of some to provide this commodity for others, and to live themselves upon the income which their industry provides. It should be noted, however, that a wise Providence has provided such a variety of fishes that the species which the sportsman has come to regard as his special province make few demands on the commercial variety.

In this day and age, therefore, the sportsman who merely wants food need not trouble to invest in expensive equipment, and spend time trying to secure it in its native environment; all he need do is go to the nearest market and buy it. For this reason angling and hunting have stepped from the realm of domestic necessity to the world of sport, and it is as such that we are interested in them.

The value of fish and game as recreational incentives is many times their worth as food. Game fish, for example, are probably worth from five to ten dollars per pound for sporting purposes; their value as food is only a small percentage of these amounts.

Game is in the same category. As an inducement to sportsmen to take advantage of the great out-of-doors, and absorb some of its health-giving qualities it is of priceless value; reduced to possession it becomes but a prosaic part of the larder supply.

Undoubtedly therefore the chief interest of the sportsman in fish and game is a sporting one. His bag of game or creel of fish are but a tribute to his skill, and as such represent a measure of success in playing the game.

That last phrase embodies the whole kernel of sporting ethics. Playing the game is the first requisite of good sportsmanship, and is intended to apply in its fullest sense. This implies a thorough knowledge of the rules which govern and a constant vigilance to see that they are observed.

These rules are embodied in the Game and Fisheries Laws and Regulations, and are intended to provide enjoyment of the twin sports and adequate protection for the resources involved.

The rules contain certain restrictions as to the quantity of game and fish that may be taken at any one time. These limits of catch are quite generous and leave no excuse for excessive taking. It is pointed out, however, that they are not intended as targets; in other words the sportsman should not aim at obtaining limits but rather at getting as much pleasure as possible out of the sport, and taking only such game or fish as he can use for his own immediate requirements within the legal limits. With the possession of a legal limit there can be no quarrel, but obviously if limits became the goal of everyone a tremendous strain would be put upon the available resources and might mean further restrictions in order to maintain the supply. To conserve certain articles during the stress of war a system of rationing was devised and each person was allowed a quota based on individual requirements. It was sound business because, properly applied, it ensured an equal amount for all. Those who did not require their full quota were expected to forego whatever was in excess of their requirements in order to allow a margin for safety. A bag limit is your legal portion, but it is suggested that you take only what you need for immediate use within the law. The game you save today will ensure a supply for tomorrow. This is sound conservation.

The scientific development of sporting equipment has been very pronounced during the past half century. Firearms and ammunition have been so improved that it is now comparatively easy to shoot with accuracy and deadly effect. In the days of the sling-shot, the bow and arrow or the old muzzle loader the odds against game were not so heavy. If the first shot was unsuccessful the quarry had a better than even chance of getting away. It took time to prepare the sling, fit the arrow or tamp the powder. Today these antiquated weapons have given place to automatic firearms, pump guns, fast bolt action magazine rifles and for greater accuracy telescopic sights. These rapid fire weapons are deadly, and have greatly increased the advantage of the sportsman.

Game on the other hand has been unable to strengthen its defences to meet the new forces arrayed against it. It still depends upon camouflage, speed and natural instinct to protect itself, as it did in the era of the bow and arrow. Pitted against modern equipment therefore it is greatly handicapped.

Keeping in mind the sporting angle, the unwritten code suggests that the sportsman handicap himself and reduce the odds against the game. The chief defence of game birds is flight, and of game animals speed. You will find your pleasure intensified if you make it a point to get your birds on the wing if possible, and your game when it is on the defensive. This may limit your take but it will increase your pride of possession.

Most of us recall with pleasure our boyhood days, and to many those barefoot fishing expeditions with crude pole, a piece of string and frequently just a bent pin for a hook, are written large in the book of memory. Our hearts yearned for a rod and reel, a tackle box filled with all those gaudy gadgets which the modern angler delights in, and the thrill of catching a "big one". Looking back on it now we realize that the bent pin was symbolic of the modern trend. A fish caught on a bent pin had a fifty-fifty chance of fighting its way out of trouble. The advent of the barbed hook, followed by the gang hooks greatly increased the odds against fish. Barbless hooks would be the ideal arrangement from a sporting standpoint, but the angler can reduce the odds appreciably by using fewer "gangs", together with light rod and tackle. The thrill of taking gamey fish on tackle which gives it a sporting chance of fighting clear lends a new zest to the sport. Don't worry if the fish gets away. It simply means that you have been outwitted, and that's good for conservation and your egotism.

The lures used by the angler to inveigle his adversary into combat are many and varied. Naturally if a fish had the ability to discern it would not be fooled by juicy baits or artificial lures, and you Mr. Angler would not have so many pleasant experiences to relate or tall stories to tell. But this lack of discernment applies to small fish as well as large so you will frequently find yourself pulling in undersize fish. The rules provide that such fish shall be immediately returned to the water from which they were taken, alive and uninjured. The purpose of this provision is to give the fish a chance to reproduce their kind before taking them from the water. Obviously to be of value as a conservation measure the stipulation that they be uninjured is important. Injury to small fish can happen in a number of ways, one of which is through careless handling. Don't squeeze the little fellow to death when releasing the hook; and perform the extraction with as much care as possible. In the event that it cannot be removed without injury cut the line and let the fish go with the hook still in its mouth. The hook will disintegrate in a comparatively short time, and unless otherwise injured the fish will suffer no serious consequence. The loss of a hook is a cheap price to pay for the thousands of its kind the released fish may provide. As a further precaution wet your hands before handling the fish.

These ethics, being part of an unwritten code and having to do with personal conduct, are the responsibility of the individual. The man who is considerate of his fellow man will in most cases carry the same sporting instincts into his recreational activities. Such a man will not abuse his privileges or infringe upon the rights of others. He will at all times while hunting conform to the best accepted practices for safeguarding the property and lives of others. This implies incessant care in handling loaded fire-arms and in no circumstances taking a chance. These little acts of conservation, consideration and courtesy, together with many others which will readily occur to the thoughtful person, are the distinguishing features of good sportsmanship.

Economic Value of the Sportsman's Bag

In the preceding article we have stressed the fact that the taking of game and game fish is a sporting proposition, but it is necessary to add that the food taken by this means has become part of the National food supply. Every bag of game or fish takes the place of food which would otherwise be purchased in the open market. Commenting on this fact the Director of the U.S. Fish and Wildlife Service, in his annual report to the Secretary of the Interior, states: "Game (in the United States) is estimated to replace annually enough meat to feed an army of 5,000,000 for 77 days."

The amount of game and fish taken annually in Ontario would be proportionately large, and would make a substantial contribution to the food supply of the Nation.

It will be apparent therefore that while the obtaining of food is not the primary purpose of the sportsman's activities, yet the contribution he makes in that regard is of very great economic value, and emphasises the need for sound protection and wise use of this National heritage.

Departmental History (continued)

CHANGES IN LAWS

It is obvious from annual reports issued during the term of the Commission that co-operation between the Dominion and the Province over the fisheries situation was not what it might have been. It will be recalled that the Privy Council had held that the Provincial Legislature was not empowered to enact fishery regulations and restrictions; as a result the suggestions of the Province frequently conflicted with the ideas of the Dominion authorities causing friction and at times much robust criticism. For example; speaking on the matter of close seasons, and after elaborating on a scheme for zoning the Province and establishing appropriate seasons for each, the Deputy Commissioner in his 1903 report says, rather plaintively, "The Province can only suggest, however, as the subject is wholly within the jurisdiction of the Dominion; but it is at the same time so closely allied to Provincial administration, and so vitally affects Provincial property, that it is considered quite within the function of the Department to make these observations." That these difficulties in connection with regulations and restrictions persisted for a number of years is evident from the earlier reports issued by the Department of Game and Fisheries. The following extract from the Second Annual Report for 1908 minces no words: "Divided jurisdiction has, I regret to say, during the past year, as in former ones, resulted in destructive infractions of the laws of nature and common sense. No matter how expensive or efficient the protection of the fisheries of the Province is during the open season, the desired effect of preserving and perpetuating this valuable asset will be of no avail so long as those controlling the seasons submit to be periodically held up by those determined to kill the goose that lays the golden egg." It

should be added that these administrative difficulties have gradually been ironed out, and for many years there has been a real spirit of co-operation between the Dominion and the Province, although the former still retains its authority over the fishery regulations.

Changes in the regulations during the past half century have in few cases been drastic but they show a gradual tightening up, with progressive restrictions intended to take care of increasing demands. In 1887, for example, the open season for speckled trout extended from May 1st to September 15th; the same season was in effect during 1945. But whereas there were no limits of take in those days there are very definite limits today. In most cases the game-fish seasons have been shortened, as a protective measure. In all cases bag limits now prevail. Limits for bass, originally set during the first year of the Commission control at twelve per day have dropped to six; while speckled trout limits have dropped from fifty to twenty, with a weight limit of ten pounds instead of fifteen. Maskinonge were not much sought after in those early days of "limitless" fishing, but their value as sport fish rose considerably during recent years and the ceiling is now two per day.

The same general remarks apply to game. In the case of deer, the far too generous limit of five per day has been reduced to one. Duck limits have dropped from 300 per season to 150, and the take of upland game has followed the same restrictive plan.

Other general regulations have been strengthened and made to keep pace with modern ideas of conservation.

THE MEEK SHALL SURVIVE

V. Crichton

(Game and Fisheries Overseer)

Have you ever seen the ferocious looking Canada lynx, in its natural habitat. You will be agreeably surprised at its tawny coloured thick fur, at its green wicked eyes and at the long tufts of black hair, springing upwards from the tips of the ears. You will marvel at the sleek streamlined powerfully built body, at the strong wicked jaws, which house its sabre like fangs, at the big powerful forelegs and the big fore-paws with their long rapier claws which make an imprint similiar to a man's clenched fist in the snow and mud.

Truly a noble looking animal you would say, one to be compared to the lion, tiger and panther; one that would fight to its last ounce of blood and strength for its survival. Yet, will he? — Definitely not.

The lynx likes dry country to travel in. He has no den or home, but is content to make his bed under any spruce or pine tree that will afford shelter. He is carnivorous and woe betide the rabbit or grouse that he stalks. He is a good hunter, but will not tackle anything as large or larger than himself. He is a terror to anything small and shows a great deal of

fight when tackling these smaller animals, but is a coward when some animal his own size comes along. In other words he is just a big bluff, for all his size and strength. He has no fortitude to fight for his own life. Once caught in a steel trap or snare, a piece of ordinary store twine will then hold him, he will lie down, making absolutely no effort to free himself, and slowly starve or freeze to death.

We once let a lynx out of a trap that was caught by a toe on the fore-paws. When freed he just lay there like a beaten dog and we left him. Ten hours after we came back to the same place and the lynx was still there in exactly the same position as we had left him and would have starved or frozen to death had we not taken a long pole and shoved him over. When he found that nothing was holding him, he did not stay in our company very long, but made for the safety of the thick woods.



CANADA LYNX (Taken in Chapleau Game Preserve).

Here we have a large powerful ferocious looking lynx capable of trimming his own weight in other animals and much larger, lying down like a beaten cur to die without any fight or struggle. Contrast the meek, tiny and humble beaver battling every inch of the way for his survival.

Most everyone has seen the industrious beaver or the evidence of them. Could you find a more meek and docile animal. Very small in comparison to the lynx, it has short legs, small paws, tiny mouth and sleek glossy hair. It is definitely not a hunter, but hunted.

The beaver is content to follow every wish and whim, in Spring or early Summer travelling downstream to explore new fields, basking in the sun or cooling himself in the water, enjoying life to the full and living the life of "Riley". Comes the middle of August he and his family start to get ready for winter and are the busiest creatures in creation from this

time until freeze-up. During this period they cut and haul their winter's supply of food to their homes. This continues until the last night before freeze-up. In their spare time they will repair and build dams, repair and build houses and shortly before the freeze-up will plaster mud on their homes for warmth. During the long winter months, they content themselves in their homes, feeding on the bark of their food supply which consists of poplar and birch and very often jackpine and cedar which is stored under the ice.

The beaver is a harmless creature, inoffensive to man or beast. They are strictly vegetarians. They do not wish for any part of other animals, but desire to be left alone. They make very good pets and can be tamed within two days. If left alone they are meek and mild. But once cornered or trapped they fight to their last ounce of strength for life that is so precious to all of us. They are more like the lion and tiger, when trapped or caught, and do not give up until they are definitely overcome, drowned or exhausted. When caught in a steel trap they will twist off their paws, if caught below the second joint and free themselves; but under no circumstances do beaver chew off their paws as many people would have one believe.

Only the fit shall survive. Could this be one of the reasons why beaver are much more plentiful than lynx. It is the old biblical quotation come true once again. "The meek shall inherit the earth."

MAN LEARNS FROM NATURE

Nature is a great teacher. The works of creation are marvellous in their complexity and awe-inspiring in their concept. From this realm man received the inspiration for many of those weapons of war which made the recent struggle one of advanced scientific attainment. Camouflage is not a new art, but it undoubtedly owes its origin to the scheme of colouration devised by Nature by which birds and animals are made to blend with their environment as a protection against their enemies. In the military sphere it has, of course, developed beyond any mere scheme of colour blending, although in the final analysis that is the basis of the art.

Military science and engineering skill have carried us far in the matter of mechanical equipment. Perhaps this advancement has been most apparent in the field of aeronautics where airplanes have been developed to a high standard of practical efficiency. The latest models have terrific speed, can travel great distances and carry heavy loads.

One of the developments which proved of great effectiveness was the glider. Although this motorless plane, when used for transporting troops, was usually towed to its destination, it is capable of travelling reasonable distances without any motive power, except the air currents and the skill of the pilot. In the realm of Nature the glider is exemplified in the flying fish. This aquatic curiosity bears a close resemblance to a modern airplane, but is still a jump ahead of the glider, for it combines the accomplishment of the submarine with that of the plane.

The flying fish, like the glider, does not appear to have any means of propulsion when in the air apart from the initial energy it receives by the speed it develops under water, and while taxiing on the surface prior to flight. It closely resembles a glider when soaring through the air, its large pectoral fins outstretched to give it balance, but apparently motionless. It can turn in its flight at a fairly sharp angle and seems to have reasonable control of its movements.

The flying fish is perfectly streamlined, and offers very little resistance to the air. Gliders have the same features, and like the flying fish depend for propulsion on the energy they receive at the take-off, plus the skilful use of air currents when in flight.

From the Ohio Conservation Bulletin we cull the following: "According to 'Army News' this country's latest armored vehicles are based on exhaustive studies of the turtle. This lowly reptile, provided by nature with protective armor, is said to have taught ordnance engineers the essential lesson of 'fire-streaming.'

Fire-streaming is designed to enable army tanks, tank destroyers and motorized artillery to shed enemy projectiles as easily as the horny shell of the turtle sheds a horse's hoof. Earlier tanks presented their upright armoured surfaces to direct impact. Now the silhouettes are lower and the armor slopes in such a way that hard-hitting armor-piercing projectiles tend to bounce from the tank's sides like hail from a sloping roof. The lowly turtle is now wearing an Army Ordnance service ribbon."

Thus we find that man, with all his inventive genius, can still learn much from the things of Nature.

DEPARTMENTAL NOTES

In line with post-war plans to enlarge its protective force the Department has, within recent months, increased its field staff personnel by over 25%. These new officers are all returned men with varying periods of overseas service, and have a background of training and experience which should fit them for the type of work they are required to perform. Others will be added to the staff as circumstances warrant and the re-organization plans of the Department are developed. Most of these men were given some preliminary training of a practical nature under the guidance of an experienced officer before being assigned to regular duties.

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In a further attempt to improve the protective service, schools for Overseers, covering an intensive course of legal and administrative instruction extending over a period of four days, have recently been held in Toronto and North Bay, while a third is scheduled to be held at Fort William at an early date. All of the new officers and all but a skeleton staff of the regular overseers in each district were called in to attend these courses of instruction. In addition to a complete interpretation of the various laws and regulations covering wild life administration, discussion of the many problems met with by the men in the field was encouraged and

proved highly beneficial. The preparation of evidence and the legal steps involved were thoroughly discussed and, for the benefit of the new men particularly, court procedure under suitable direction, was exemplified by experienced officers. Addresses by the Hon. the Minister and the Deputy Minister emphasized the need for courtesy in dealing with the public and explained the Department's plans for an efficient service. Lectures were given by various members of the staff on the routine work of the Department, while fish culture methods, including a revised system of restocking and methods of planting, were presented in detail.

It was the first time that such a course of instruction had been attempted and the results were so satisfactory that it is hoped to make these schools an annual event.

* * * *

Speaking of schools; it may be of interest to note that arrangements have been made to add to the staff of the Fish Culture Branch, four young men who are now taking courses in Biology and kindred wildlife subjects at the University of Toronto. During the summer vacation they will be employed in research work of various types and when their studies are completed will be assigned to field work linked with the problems of fish culture, and wildlife in general. These additions to the staff should enable the Department to expand its work of research and investigation and provide much information along scientific lines.

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Last year in an effort to check the illegal export of fish by non-residents, patrols were established at all of the main points of entry throughout the Province. These men contacted returning guests, and with the co-operation of the Customs Officers, inspected licenses and checked the bag limits of fish and game being exported. It was a new experience for many of the visitors and not a few were relieved of excess bags and made familiar with the provisions of the Act in this regard. The work was done with courtesy and restraint and few there were who offered objection to this protective check. These border patrols will be extended in the future to completely cover this phase of the work.

* * *

Non-resident angling licenses will this year have attached to them separate coupons for the various types of game fish, covering the legal export of one day's catch. A non-resident leaving the country with bass, maskinonge or other species of game fish will be required to detach and surrender the respective coupons covering such fish, and on any future visits to the Province may only export the legal limit of the species for which coupons are still attached to his license. If the license is for the season, however, he may continue to angle while in the Province, but if the coupons have already been detached no further export of game fish will be permitted.

KAMLOOPS TROUT

H. H. MacKay

Director, Fish Culture Branch

The Kamloops trout occurs in British Columbia, throughout the basin of the Fraser river, above Hell's Gate canyon, and throughout most of the

basin of the Columbia river.

There is considerable variation in the characters of Kamloops trout taken from different habitats. These differences are so variable that it is unwise to generalize excepting for those specimens taken from larger lakes. Even in those cases confusing differences are known to occur.

In most of the larger lakes specimens of Kamloops trout may be separated, generally speaking, into three groups:

- (1) The small heavily-spotted, greenish-coloured fish found in streams flowing into the larger lakes.
- (2) Large blue-backed, lightly-spotted silvery fish.
- (3) Those having the rainbow type of colouration.

The small, heavily-spotted greenish-coloured fish inhabit shallow water, and it is thought that the colouration of these fish is associated with the intensity of light. Generally speaking, such intense or more defined colouration is found in fishes frequenting shallow water.

The large blue-backed, lightly spotted silvery fish, out of the spawning season, corresponds in colour to the steelhead, a rainbow trout that descends to the sea or to a large body of fresh water, after spawning. Rainbows (steel heads) that descend streams to large fresh water lakes, for example, the Great Lakes, develop this silvery colouration. This is also true in the case of the brown trout. You have probably observed that most species of fish living in open waters of the sea or of a lake have a silvery colouration and it is probable that this is due to conditions of the environment, such as depth of water, light penetration and feeding habits. In addition to the characteristics already mentioned, the typical silvery type of Kamloops trout has small "X" shaped spots above the lateral line and a few below it. There are a few rounded spots on the top of the head, and behind the eye. The chin and lower jaw are black. Except for the spots, the fins are nearly white. In most specimens of the silvery type there is a pinkish sheen on the sides of the body.

In the rainbow type of colouration there is a pink or reddish band along the sides and gill cover. As the spawning season approaches this band takes on a more intense hue. The dorsal surface of the body is often greenish, and the spots are larger and more numerous than those on the silvery type, extending well below the lateral line. The fins are often pinkish, sometimes darkly clouded, and more heavily-spotted than those of the silvery type.

Among young fish there is often considerable variation of the above types of colouration, and additional markings associated with parr marks.

The body shape of the Kamloops trout is quite similar to that of the steelhead. In fish 12 to 15 inches long, the heads are approximately the same length, but in larger fish the head of the Kamloops trout is decidedly longer. As sexual maturity approaches the increase in the size of the head is more marked in the case of the latter. Another difference between the Kamloops trout and the steelhead, is that the maxillary extends farther back in the case of the former. All the fins except the anal are longer than

those of the steelhead. Dr. Mottley (1936) comments upon the effect of environment on characters used to distinguish various forms of Kamloops trout, as follows:

"It was found by introducing the Mountain Kamloops into lakes at lower elevations containing a rich food supply that many of the other characters used to distinguish the various forms, such as head and body proportions, could also be modified. It was concluded, therefore, that the differences previously held to be marks of separate species were caused by differences in the environment, and further that if trout were transferred from one locality to another it would be impossible to distinguish them with certainty. This was found to be practically the case when Kamloops trout were introduced to coast waters. There is no character by which all adult Kamloops and all adult steelheads can be recognized, hence it has been considered better to classify them as a single species of rainbow trout. The terms steelhead, Kamloops and Mountain Kamloops do not refer to distinct species, but to different varieties of the one species occurring in different localities."

Information on the spawning habits of this interesting variety of rainbow trout is scanty, but from literature consulted, it is stated that the spawning period varies from April to June according to the season and locality. Spawning may take place in creeks, or in outlet creeks from small lakes, quite close to the lake, or on the beaches of larger lakes, near the mouths of in-flowing streams. By August the fish are $1\frac{1}{2}$ to 2" long, and they usually seek the lake before the end of the first year; in some cases they spend their whole life cycle in the stream.

From the literature consulted it appears that the food of the Kamloops trout up to approximately 16 inches in length is insects, both aquatic and terrestrial. Larger fish feed on fish and in most lakes where large Kamloops are taken, the kokanee is an important item in their diet.

The Kamloops trout is an excellent game fish taken on the fly in May and June and by trolling in July and August. When caught it fights like a steelhead making terrific rushes and jumping several times.

There appears to be some doubt about the maximum weight attained by this fish. The largest recorded for Okanagan Lake was thirty-two pounds. In October, 1929, Mr. Joseph Kline, Cranbrook, B.C., took a Kamloops trout weighing thirty-five pounds, eight ounces from Premier Lake, B.C. As in the case of other fish, the rate of growth and the size attained depends largely on the amount of food available. In larger lakes, there is, generally speaking, more food and a greater range in the size of foods.

On account of its excellent characteristics as a game-fish, it was considered desirable to introduce it on an experimental basis to selected Ontario waters, in which conditions conducive to its well-being were believed to exist. In the summer of 1934, and subsequently, eyed Kamloops trout eggs were obtained through the courtesy of the Department of Fisheries of the Province of British Columbia. The culture of the eggs was tried at several hatcheries, and a number of fingerlings were

carried to the adult stage, in a pond at Normandale, Ontario. In 1938 four years after the first consignment of eggs was received the Kamloops trout spawned during the last week of April and early May. The best collection of eggs from our own breeders was made in 1939. Spawning at four years of age is consistent with observations of the spawning habits of this trout in certain lakes of British Columbia.

The distribution of Kamloops trout fingerlings and yearlings to Ontario waters was as follows:

PERIOD 1935-45

District of Algoma

Beverley Lake.....	5,000
Blue Lake.....	19,000
Constance Lake.....	67,464
Cummings Lake.....	10,000
Devils Lake.....	23,000
Frater Lake.....	15,000

Bruce County

Gillies Lake.....	27,900
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District of Muskoka

Clear Lake.....	9,500
Echo Lake.....	50,490
Marten Lake.....	500

District of Nipissing

Bloom Lake.....	3,000
Timagami Lake.....	14,000

Peterboro County

Lanes Lake.....	1,500
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District of Sudbury

Unnamed Lake.....	3,500
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Haynes Lake.....	7,000
Heyden Lake.....	7,000
Kirkpatrick Lake.....	8,650
Lake No. 1.....	7,000
Montreal River.....	10,000
Trout Lake.....	68,000

Grey County

Bass Lake.....	29,700
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District of Muskoka

Red Chalk Lake.....	11,100
Rill Lake.....	10,200
Waseosa Lake.....	41,900

District of Parry Sound

Bernard Lake.....	29,100
Poole Lake.....	11,800

Wellington County

Bellwood Lake.....	2,000
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Good catches of Kamloops trout have been reported from Echo, Gillies, Bass and Bloom Lakes, and there is good evidence that the trout have spawned successfully in Echo Lake. When personnel is available it is desirable to conduct studies on each of the lakes where Kamloops trout have been planted to determine how the fish have responded to the environment and to what extent further plantings may be warranted.

LITERATURE CONSULTED:

Dymond, J. R. 1932	The trout and other game fishes of British Columbia. Dept. of Fisheries, Ottawa.
Mottley, C. Mc 1932	Dept. of Fisheries, Ottawa. The propagation of trout in Kamloops district, British Columbia. Trans. Am. Fish. Soc., Vol. 62, Washington, D.C.
1936	The classification of rainbow trout of British Columbia. Pac. Biol. Sta., Nanaimo, B.C. Dept. of Fisheries, Ottawa.

GOOD TIMBER

The tree that never had to fight
For sun and sky and air and light,
That stood out in the open plain
And always got its share of rain
Never became a forest king
But lived and died a scrubby thing.

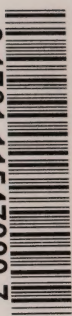
The man who never had to toil
By hand or mind 'mid life's turmoil,
Who never had to win his share
Of sun and sky and light and air,
Never became a manly man
But lived and died as he began.

Good timber does not grow in ease;
The stronger wind, the tougher trees
The farther sky, the greater length,
The rougher storms, the greater strength,
By sun and cold, by rain and snows,
In tree or man good timber grows.

Where thickest stands the forest growth
We find the patriarchs of both,
And they hold converse with the stars
Whose broken branches show the scars
Of many winds and much of strife
This is the common law of life.

(Unknown)

"Pennsylvania Angler".



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